

Traffic Analysis of Roundabouts and Signalized Intersections Based on Traffic Volume and Geometric Design

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ABSTRACT

In this research, the intersections of Talesh and Astara cities have been investigated as one of the busiest intersections in Gilan province. The research method is that first the data is entered in Aimsun software and from the data processing, by presenting the scenarios and the resulting outputs such as: travel time, delay, fuel consumption, air pollutants by type of pollutant, the average speed was obtained. Thanks to that, the best scenario can be selected in terms of traffic indicators. The results of this simulation show the reduction of travel time, the reduction of delays in the passage of cars, the reduction of fuel consumption, the reduction of air pollutants, all of which are aimed at improving the performance of the intersection as much as possible, and all the factors presented are evident in the best scenario of the intersection. It can be seen by analysing Aimsun software and comparing different scenarios, it was found that improper implementation of intersections changes the traffic conditions. By examining the signalized intersections and analysing and evaluating them, it was found that incorrect traffic light timing can worsen traffic conditions. Finally, it was found that by examining the intersections in the studied area, it is possible to identify the problems in it, or in general, it is possible to diagnose the problems and provide scenarios to correct the issues to solve the problems.

Keywords: Traffic roundabouts, Intersection Modification Scenario, Aimsun Software, Traffic Pollutants Reduction